ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)		DATE **February 1999**
BUDGET ACTIVITY **5 - Engineering and Manufacturing Development**	PE NUMBER AND TITLE **0604823A Firefinder**	PROJECT **DL85**

COST *(In Thousands)*	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DL85 Firefinder AN/TPQ-47	2400	20583	32353	37589	5615	0	0	0	0	100970

A. Mission Description and Budget Item Justification: The Firefinder Block II program will replace the AN/TPQ-37 Artillery Locating Radar. This program is in response to the approved Mission Need Statement (MNS) for the Advanced Firefinder System which describes an urgent need for a longer range and less manpower intensive radar. An Operational Requirements Document (ORD) for Firefinder Block II was approved 25 September 1996. Firefinder Block II will double the current artillery range performance out to 60km and improve the target throughput up to 50 targets per minute in a highly mobile, transportable and survivable system. The Firefinder Block II will provide a new capability of missile and rocket detection at ranges of 150-300 km and will be capable of alerting Theater Missile Defense Systems. The system will be capable of C-130 roll-on/roll-off transportability for rapid deployment. Crew size will be reduced from 12 to 8. This program will leverage off the AN/TPQ-36(V)8 Electronics Upgrade program by using the same man-machine interface. The Firefinder Block II will be integrated into the Army Tactical Command and Control System (ATCCS) by interfacing with the Advanced Field Artillery Tactical Data System (AFATDS).

FY 1998 Accomplishments:
- 185 Finalized and issued solicitation for Engineering & Manufacturing Development (EMD) contract award
- 221 Completed development of simulator to support Source Selection Evaluation
- 608 Conducted Source Selection Evaluation Board (SSEB)
- 1138 Awarded EMD contract and initiate program planning
- 100 Initiated development of target, clutter and electronic countermeasures (ECM) simulation models
- 148 Developed Partnering Agreement and established Integrated Product Teams (IPTs)

Total 2400

FY 1999 Planned Program:
- 417 Complete programming planning and conduct Integrated Baseline Review (IBR)
- 852 Begin development and order parts for the Radar Environmental Simulator (RES)
- 1635 Award major subcontract for development of solid state Power Amplifier Module
- 1270 Award subcontract for development of Joint Technical Architecture-Army (JTA-A) compliant operational software
- 9789 Complete development of radar hardware/software design
- 625 Complete development of target, clutter and ECM simulation models
- 5459 Procure long lead items and begin build of three (3) systems
- 536 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 20583

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FY 2000 Planned Program:

- 428   Continue development of the RES
- 924   Continue subcontract for development of JTA-A compliant operational software
- 4668   Complete software coding and unit test for three (3) systems
- 2250   Complete development and manufacture solid state Power Amplifier Modules for three (3) systems
- 16087   Complete build of three (3) systems
- 2572   Prepare training course materials, Interactive Electronic Technical Manuals (IETMs), and other logistics data
- 5424   Begin integration and contractor engineering test of three (3) systems

Total   32353

FY 2001 Planned Program:

- 200   Complete development of the RES
- 10682   Complete integration and contractor engineering test of systems
- 434   Complete subcontract for development of JTA-A compliant operational software
- 3792   Begin Development Test & Evaluation (DT&E)
- 690   Begin Limited User Test (LUT)
- 14028   Initiate development of Operator and Maintenance Trainers
- 5347   Initiate Survivability Enhancement Program
- 1850   Develop Electronic Support Modeling and Simulation Facility
- 566   Initiate extension of IETMs from operator level to higher level maintenance support

Total   37589

B. Program Change Summary	FY 1998	FY 1999	FY 2000	FY 2001
Previous President's Budget (FY 1999 PB)	2484	19822	33448	39000
Appropriated Value	2564	20722		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-80	-139		
b. SBIR / STTR	-63			
c. Omnibus or Other Above Threshold Reduction	-21			
d. Below Threshold Reprogramming				
e. Rescissions				
Adjustments to Budget Years Since FY 1999 PB			-1095	-1411
Current Budget Submit (FY 2000/2001 PB)	2400	20583	32353	37589

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C. **Other Program Funding Summary**	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
Other Procurement, Army OPA2										
SSN: BA5100 Firefinder P3I					94840	105088	171130	108094	372200	851352

D. Acquisition Strategy: A competitive EMD contract was awarded on 19 May 1998 to Raytheon Systems Company, El Segundo, CA. The EMD contract is a 43-month effort which began 1 July 1998 and will provide three (3) production representative systems. Production will begin to begin in 2QFY02.

E. **Schedule Profile**	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2004	FY 2005
Obtained Milestone II Approval	1Q								
Finalized and issued solicitation for EMD	1Q								
Completed development of simulator	2Q								
Conducted SSEB	3Q								
Awarded EMD Contract	3Q								
Conduct Integrated Baseline Review (IBR)		1Q							
Complete development of hardware/software design		4Q							
Complete build of three (3) systems			4Q						
Initiate Survivability Enhance Program				1Q					
Award contract for Operator/Maintenance Trainers				2Q					
Complete integration and contractor engineering test				2Q					
Begin DT&E				3Q					
Begin LUT				4Q					
Complete DT&E					1Q				
Complete LUT					1Q				
Complete Initial Operational Test & Evaluation (IOT&E)					2Q				
Milestone III Decision					2Q				
Production Contract Award					2Q				

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ARMY RDT&E COST ANALYSIS (R-3)										DATE February 1999	

BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604823A Firefinder						PROJECT DL85	

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Primary Hardware Dev	C/CPIF	Raytheon Sys, CA/MS	900	15600	1Q-2Q	29200	1Q-2Q	10300	1Q-2Q	1300	57300	57300
b. Ancillary Hardware Dev	TBD	Various	321	1452	1Q-2Q	350	1Q	6781	1Q-2Q	669	9573	
c. Trainers Dev	SS/TBD	Raytheon Sys, CA/MS						12700	2Q	1211	13911	
d. Sys Engr (Contractor)	C/FP	Various	1353	653	1Q	100	1Q	1025	1Q	200	3331	
e. Sys Engr (Government)	MIPR	Various	352	450	1Q	186	1Q	188	1Q	180	1356	
f. Software Engineering	C/FP	Telos, OK	137	260	1Q	150	1Q	150	1Q	234	931	
g. SSEB-Contractor	C/FP	Various	272								272	
h. SSEB-Government	MIPR	Various	336								336	
Subtotal Product Development:			3671	18415		29986		31144		3794	87010	

Remark - Primary Hardware Development: As part of the Firefinder Block II EMD contract, Raytheon Systems committed to an investment of $16.4M. The total contract value is $73.7M, comprised of the Government portion of $57.3M and the contractor investment of $16.4M. To implement the investment, Raytheon will bill for only 50% of all allowable costs for the first $32.8M of the program.

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Development Support - Contractor	C/FP	Various		24		408	1Q	560	1Q		992	
b. Development Support - Government	MIPR	Various	282	145	1Q	88	1Q	93	1Q	81	689	
c. Integrated Logistics Spt (ILS) - Contractor	TBD	Various		0	2Q	0	2Q	458	2Q	108	566	
d. ILS Support-Government	MIPR	CECOM, Ft Mon, NJ	36	55	1Q	108	1Q	108	1Q	61	368	
e. Configuration Mgmt Spt- Government	MIPR	CECOM, Ft Mon, NJ		148	1Q	231	1Q	300	1Q	110	789	
Subtotal Support Costs:			318	372		835		1519		360	3404	

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BUDGET ACTIVITY **5 - Engineering and Manufacturing Development**				PE NUMBER AND TITLE **0604823A Firefinder**						PROJECT **DL85**	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Development Test & Evaluation (DT&E)	MIPR	Yuma, AZ						2418	3Q	215	2633	
b. LUT/IOT&E	MIPR	Various						525	4Q	560	1085	
c. Test Support	MIPR	Various	219	198	1Q	153	1Q	595	1Q	265	1430	
Subtotal Test and Evaluation:			219	198		153		3538		1040	5148	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 1999 Award Date	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Program Management - Contractor	C/FP	Various	303	236	1Q-2Q	494	1Q-2Q	494	1Q-2Q	71	1598	
b. Program Management - Government	MIPR	CECOM, Ft Mon, NJ	45	106	1Q	210	1Q	219	1Q	50	630	
c. Product Manger Office - Internal Support		CECOM, Ft Mon, NJ	274	720	1Q-4Q	675	1Q-4Q	675	1Q-4Q	300	2644	
d. SBIR/STTR				536							536	
Subtotal Management Services:			622	1598		1379		1388		421	5408	
Project Total Cost:			4830	20583		32353		37589		5615	100970	

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